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Chemistry

Awarding Body: Chemistry A for OCR

Level: A-Level

Introduction

Chemistry is challenging and rewarding subject. It enables us to make ever more efficient use of our natural resources and fuels, it provides the means to design and make new biologically active molecules for use in medicine, and to design new materials to revolutionise our individual lives.

If you are interested in chemistry and have enjoyed studying it at GCSE, then the Chemistry A OCR course presents the perfect opportunity to extend your studies and further your knowledge of this exciting and stimulating subject. A-Level Chemistry gives you a detailed insight into the key concepts and principles that underpin our understanding of the chemical world. It will test and develop your problem solving, numeracy, communication, experimentation and analysis skills. Areas covered include synthesis of organic compounds used in pharmacology, development of an understanding of thermodynamics used in petrochemicals, and the electrochemistry fundamental to our development of more efficient cells and energy storage. Your study will involve a combination of practical exercises and theory and will be taught in a well-equipped laboratory by our experienced staff.

Year one content

Your study will look at many aspects of chemistry and will expand further the topics learned during the AQA GCSE Trilogy Science and GCSE Chemistry courses.

Your study within year one will include the following:

- Module 1: Development of practical skills, this practical work builds over both years of the course and results in the *practical endorsement*, it is also assessed throughout all the other modules;
- Module 2: Foundations in chemistry, this covers the fundamental concepts and calculations required for the remaining modules, it will be assumed knowledge within all further modules;
- Module 3: Periodic table and energy, which explores trends within the periodic table and how chemists investigate the energetics and kinetics of chemical reactions both experimentally and theoretically;
- Module 4: Core organic chemistry and analysis, in which you discover the key reactions of alkenes, alcohols, and haloalkanes, and learn the synthetics routes to convert between these compounds.

There will be two internal written exams each with equal weighting at the end of year 12.

Year two content

During year 2, the subject continues to study two further modules:

- Module 5: Physical chemistry and transition elements, having established the fundamentals with year 1 of the course, this module will explore acids, buffers, entropy, and electrochemistry in detail;
- Module 6: Organic chemistry and analysis, this will introduce aromatic chemistry, spectroscopy, as well as the chemistry of biologically important molecules such as amino acids.

The terminal assessment of the course will consist of three written exams, all of which will be taken in June of the second year of teaching.

The assessment of practical work will be included both in the written exams and through a *practical endorsement*. This will assess students' practical capabilities throughout the course and is issued alongside the A-Level grade as either a Pass or Fail.

What you need

Chemistry is available as part of the academic pathway, and as such has the same entry requirements as this pathway in addition to a grade 5 or higher within GCSE Chemistry (or grade 5/5 in GCSE Combined Science) and a grade 5 or higher in GCSE Maths.

The OCR Chemistry A course has significant overlap with A-Level Mathematics, with up to 20% of the marks available within written assessments being 'Level 2' mathematics. It is for this reason that anyone considering chemistry at A-Level requires a grade 5 or higher for GCSE Maths alongside their grade 5 in Chemistry or 5/5 in GCSE Science.

Career and further study

An A-Level in chemistry is a highly versatile qualification and can enable you to progress to higher level study in any number of fields, most obviously Science or Medicine. It can also facilitate employment in a scientific field. Chemistry provides an essential foundation for a wide variety of career areas including: medicine, pharmacology, environmental science, agrochemicals, petrochemicals, material science, geochemistry, food and biotechnology, biomedical science, forensic science.

Trips and other costs

You are expected to purchase your own textbook. You may purchase this independently or through the school. The textbook required is *A Level Chemistry A for OCR* by Rob Ritchie and Dave Gent (ISBN: 9780198351979), Oxford University Press.

Additional optional textbooks are available and recommended such as *Maths For A Level Chemistry – A Course Companion* by Stephen Doyle (ISBN: 9781908682901), Illuminate Publishing.